



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
2004/00157

September 3, 2004

Mr. Lawrence C. Evans
U.S. Army Corps of Engineers
Attn: John Barco
Portland District, CENWP-CO-GP
P.O. Box 2946
Portland, Oregon 97208-2946

Re: Endangered Species Act Section 7 Formal Consultation and Conference, and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the City of Sandy Stormwater Drainpipe Project, Tickle Creek, Clackamas River, Clackamas County, Oregon (Corps No. 200300802)

Dear Mr. Evans:

Enclosed is a biological and conference opinion (Opinion) prepared by NOAA's National Marine Fisheries Service (NOAA Fisheries) pursuant to section 7 of the Endangered Species Act (ESA) for the issuance of a permit under section 404 of the Clean Water Act to authorize the City of Sandy to construct a stormwater drainpipe in Tickle Creek, Clackamas River, Clackamas County, Oregon. The Corps of Engineers (COE) requested formal consultation on this action, and determined that the action may adversely affect Lower Columbia River (LCR) steelhead (*Oncorhynchus mykiss*), Upper Willamette River (UWR) Chinook salmon and LCR Chinook salmon (*O. tshawytscha*). NOAA Fisheries concludes in this Opinion that the proposed action is not likely to jeopardize the continued existence of the above listed species. Additionally, LCR coho (*O. kisutch*) were proposed for listing on June 14, 2004.

Pursuant to section 7 of the ESA, NOAA Fisheries includes reasonable and prudent measures with non-discretionary terms and conditions that NOAA Fisheries believes are necessary and appropriate to minimize the potential for incidental take associated with this project.

In this Opinion, NOAA Fisheries also concludes that the proposed action is not likely to jeopardize the continued existence of LCR coho salmon, which are proposed for listing as threatened under the ESA. As required by section 7 of the ESA, NOAA Fisheries includes an incidental take statement with reasonable and prudent measures and nondiscretionary terms and conditions that are necessary to minimize the impact of incidental take associated with this action. However, the incidental take statement does not become effective for LCR coho until



NOAA Fisheries adopts this conference opinion as a biological opinion, after the listing is final. Until the time that the species is listed, the prohibitions of the ESA do not apply.

This document also serves as consultation on essential fish habitat (EFH) pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and its implementing regulations (50 C.F.R. Part 600). NOAA Fisheries concludes that the proposed action will adversely affect designated EFH for coho salmon and Chinook salmon. As required by section 305(b)(4)(A) of the MSA, included are conservation recommendations that NOAA Fisheries believes will avoid, minimize, mitigate, or otherwise offset adverse effects on EFH resulting from the proposed action. As described in the enclosed consultation, 305(b)(4)(B) of the MSA requires that a Federal action agency must provide a detailed response in writing within 30 days after receiving an EFH conservation recommendation.

Questions regarding this letter should be directed to Christy Fellas, fisheries biologist, in the Willamette Basin Habitat Branch of the Oregon State Habitat Office at 503.231.2307.

Sincerely,

A handwritten signature in cursive script, appearing to read "Michael R. Crouse".

D. Robert Lohn
Regional Administrator

Endangered Species Act - Section 7 Consultation Biological Opinion & Conference Opinion

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Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation

City of Sandy Stormwater Drainpipe Project,
Tickle Creek, Clackamas River,
Clackamas County, Oregon
(Corps No. 200400164)

Agency: U.S. Army Corps of Engineers

Consultation
Conducted By: NOAA's National Marine Fisheries Service,
Northwest Region

Date Issued: September 3, 2004

Michael R. Crouse
for

Issued by: _____
D. Robert Lohn
Regional Administrator

Refer to: 2004/00157

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INTRODUCTION

Background

On February 17, 2004, NOAA's National Marine Fisheries Service (NOAA Fisheries) received a letter from the U.S. Army Corps of Engineers (COE) requesting informal consultation pursuant to the Endangered Species Act (ESA) for the issuance of a permit under section 404 of the Clean Water Act (CWA) to the City of Sandy. On March 15, 2004, NOAA Fisheries determined that the action had effects that are likely to adversely affect listed species, suggested the action undergo formal consultation and requested additional information. The COE responded in a June 3, 2004, letter with the additional information and initiated formal consultation. References and dates, listing status, and ESA section 4(d) take prohibitions are found in Table 1.

Table 1. Federal Register Notices for Final Rules that list species, designate critical habitat, or apply protective regulations to ESUs considered in this consultation. (Listing status 'T' means listed as threatened under the ESA, 'E' means listed as endangered, and 'P' means proposed for listing; see, also, proposed listing determinations for 27 ESUs of West Coast salmonids, at 69 FR 33102, 6/14/04.)

Species ESU	Listing Status	Critical Habitat	Protective Regulations
Chinook salmon (<i>Oncorhynchus Tshawytscha</i>)			
Lower Columbia River	T 3/24/99; 64 FR 14308	Not applicable	7/10/00; 65 FR 42422
Upper Willamette River	T 3/24/99; 64 FR 14308	Not applicable	7/10/00; 65 FR 42422
Coho salmon (<i>O. kisutch</i>)			
Lower Columbia River	P 6/14/04; 69 FR 33102	Not applicable	Not applicable
Steelhead (<i>O. mykiss</i>)			
Lower Columbia River	T 3/19/98; 63 FR 13347	Not applicable	7/10/00; 65 FR 42422

The objective of this Opinion is to determine whether the proposed action is likely to jeopardize the continued existence of the ESA-listed and -proposed species. This consultation is conducted pursuant to section 7(a)(2) of the ESA and its implementing regulations, 50 C.F.R. 402.

Proposed Action

The proposed project consists of installation of an 18-inch diameter stormwater drainpipe between an existing stormwater pond and a tributary to Tickle Creek. The 3,420 square foot stormwater pond was constructed to contain stormwater runoff from a residential development to the west. The existing pond will be planted with native wetland plant vegetation that are better

adapted to a shorter hydroperiod to improve the nutrient assimilation capacity. Currently, the pond cannot contain all of the runoff and subsequently overflows periodically.

The proposed project would lower the water elevation in the pond by discharging excess stormwater into the tributary via the drainpipe. Accumulated sediments from the existing pond will be removed to provide a consistent 3-foot depth. Invasive species in the project area will be removed mechanically when sediment is removed from the pond. No herbicide use is proposed with this project. Removal of 70% of total suspended solids for all runoff generated up to and including the water quality storm of 0.83 inches of rainfall in 24 hours will be accommodated with the proposed design. Velocity of the discharge water at the outfall is calculated as 1.58 feet/second at a perpendicular direction from the flow of the existing channel.

An operations and maintenance plan has been established for the facility and includes the following activities:

- Inspections will occur monthly for the first three wet weather months after installation and then bi-monthly. From June to September one inspection will be conducted in September. After the first year, the facility shall be inspected in March and September and during unusual storm events or spills.
- Debris, grit, or sediment in upstream manholes shall be removed. The outflow pipe shall be cleared of any blockage. Cleaning shall be performed without detergents or surfactants.
- Insects and/or rodents shall not be harbored in the detention pond or conveyance pipe. Control measures shall be performed when insects and/or rodents are present.
- The pond will be inspected to insure that it remains level, with no channeling. Baffles will be inspected. Energy dissipation rock that has been displaced will be replaced or re-graded.
- Ensure that plants are able to grow in the pond. Maintenance may include rototilling, re-seeding, removal of sediment, and debris blockage.
- Keep inspection and maintenance records of actions taken during planned and emergency maintenance.

Action Area

The action area is defined by NOAA Fisheries regulations (50 C.F.R. 402) as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action.” The action area is the tributary to Tickle Creek, including the streambed, streambank, and water column downstream to the confluence with Tickle Creek.

ENDANGERED SPECIES ACT

Biological Opinion

The objective of this Opinion is to determine whether the proposed action is likely to jeopardize the continued existence of these ESA-listed or -proposed species or destroy or adversely modify designated critical habitat. This consultation is conducted pursuant to section 7(a)(2) of the ESA and its implementing regulations, 50 C.F.R. 402.

Biological Information

LCR Chinook Salmon

Natural-origin fish had parents that spawned in the wild as opposed to hatchery-origin fish whose parents were spawned in a hatchery. The abundance of natural-origin spawners ranges from completely extirpated for most of the spring-run populations, to over 6,500 for the Lewis River bright population. The majority of the fall-run tule populations have a substantial fraction of hatchery-origin spawners in the spawning areas and are hypothesized to be sustained largely by hatchery production. Exceptions are the Coweeman and Sandy River fall-run populations which have few hatchery fish spawning on the natural spawning areas. These populations have recent mean abundance estimates of 348 and 183 spawners, respectively. The majority of the spring-run populations have been extirpated largely as the result of dams blocking access to their high elevation habitat. The two bright Chinook populations (*i.e.* Lewis and Sandy) have relatively high abundances, particularly the Lewis.

In many cases, data were not available to distinguish between natural- and hatchery-origin spawners, so only total spawner (or dam count) information is presented. This type of figure can give a sense of the levels of abundance, overall trend, patterns of variability, and the fraction of hatchery-origin spawners. A high fraction of hatchery-origin spawners indicates that the population may potentially be sustained by hatchery production and not the natural environment. It is important to note that estimates of the fraction of hatchery-origin fish are highly uncertain since the hatchery marking rate for LCR fall Chinook is generally only a few percent and expansion to population hatchery fraction is based on only a handful of recovered marked fish.

UWR Chinook Salmon (spring only in the Clackamas River)

All spring Chinook in the ESU, except those entering the Clackamas River, must pass Willamette Falls. There is no assessment of the ratio of hatchery-origin to wild-origin Chinook passing the falls, but the majority of fish are undoubtedly of hatchery origin. (Natural-origin fish are defined as having had parents that spawned in the wild as opposed to hatchery-origin fish whose parents spawned in a hatchery.)

No formal trend analyses were conducted on any of the UWR Chinook populations. The two populations with long time series of abundance (Clackamas and McKenzie) have insufficient

information on the fraction of hatchery-origin spawners to permit a meaningful analysis. In general the majority of the populations in this ESU are extirpated or nearly so or are considered not self-sustaining. The exceptions are the Clackamas and McKenzie Rivers.

LCR Steelhead

Based on the updated information provided in this report, the information contained in previous LCR status reviews, and preliminary analyses, the number of historical and currently viable populations have been tentatively identified. This summary indicates some of the uncertainty about this ESU. Like the previous BRT, the current BRT could not conclusively identify a single population that is naturally self-sustaining. Over the period of the available time series, most of the populations are in decline and are at relatively low abundance (no population has recent mean greater than 750 spawners). In addition, many of the populations continue to have a substantial fraction of hatchery-origin spawners and may not be naturally self-sustaining.

LCR Coho Salmon

The status of this ESU was reviewed by the BRT only a year ago, so relatively little new information was available. As indicated by the risk matrix totals, the BRT had major concerns for this ESU in all risk categories. The most serious overall concern was the nearly total absence of naturally-produced spawners throughout the ESU, with attendant risks associated with small population, loss of diversity, and fragmentation and isolation of the remaining naturally-produced fish. In the only two populations with significant natural production (Sandy and Clackamas), short- and long-term trends are negative and productivity (as gauged by preharvest recruits) is down sharply from recent (1980s) levels. On the positive side, adult returns in 2000 and 2001 were up noticeably in some areas.

The paucity of naturally-produced spawners in this ESU can be contrasted with the very large number of hatchery-produced adults. Although the scale of the hatchery programs, and the great disparity in relative numbers of hatchery and wild fish, produce many genetic and ecological threats to the natural populations, collectively these hatchery populations contain a great deal of genetic resources that might be tapped to help promote restoration of more widespread naturally-spawning populations.

Evaluating Proposed Action

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 C.F.R. Part 402. In conducting analyses of habitat-altering actions under section 7 of the ESA, NOAA Fisheries uses the following steps of the consultation regulations combined with the Habitat Approach (NMFS 1999): (1) Consider the status and biological requirements of the species; (2) evaluate the relevance of the environmental baseline in the action area to the species' current status; (3) determine the effects of the proposed or continuing action on the species; (4) consider cumulative effects; and (5) determine whether the proposed action, in light of the above factors, is likely to appreciably reduce the likelihood of species survival in the wild or adversely modify its critical habitat. In completing this step of the analysis, NOAA Fisheries

determines whether the action under consultation, together with all cumulative effects when added to the environmental baseline, is likely to jeopardize the ESA-listed species or result in the destruction or adverse modification of critical habitat. If either or both are found, NOAA Fisheries must identify reasonable and prudent alternatives for the action.

Biological Requirements

The first step in the methods NOAA Fisheries uses for applying the ESA section 7(a)(2) to listed salmonids is to define the species' biological requirements that are most relevant to each consultation. NOAA Fisheries also considers the current status of the listed species, taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NOAA Fisheries starts with the determinations made in its decision to list the species for ESA protection and also considers new data available that is relevant to the determination.

The relevant biological requirements are those necessary for the listed species to survive and recover to a naturally-reproducing population level, at which time protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance its capacity to adapt to various environmental conditions, and allow it to become self-sustaining in the natural environment.

For this consultation, the biological requirements are improved habitat characteristics that function to support successful rearing and migration. The current status of the listed species, based on their risk of extinction, has not significantly improved since the species were listed.

Environmental Baseline

Tickle Creek flows into Deep Creek, then into the Clackamas River, and eventually into the Willamette River. Portions of Tickle Creek support LCR steelhead, LCR Chinook, and LCR coho, although passage is impaired by a perched culvert at 362nd Aveune, just downstream from the project area. Some adults are able to pass this culvert during high flow, but the culvert remains a barrier to migration for juvenile salmonids and most adults.

Tickle Creek has both urban and rural components in the watershed. Dense stands of maturing forest and functioning floodplain commonly occur in the riparian zones beside the stream. Pool frequency and quality are low, but small areas of high quality habitat likely serve as important rearing areas. The substrate is commonly embedded, but enough suitable spawning habitat exists to support a small population of salmonids. Off-channel habitat is relatively scarce. Habitat in the less-affected areas is not pristine, but resembles harvested timberlands and agricultural areas on the west slope of the Cascades in that it is degraded but supports a local run of salmonids.

Tributaries to Tickle Creek are generally more degraded by urban development. In most of these streams, the flows have been diverted into channels to accommodate roads and urban growth.

Many passage barriers exist in some tributaries and riparian areas often are cleared, landscaped or paved. Detention ponds are present in places, but are not numerous or large enough to have a significant effect on the hydrograph. As a result of development, fish habitat is now either extremely marginal or nonexistent.

Tickle Creek flows east to west through the project area and divides into a north and south channel, just downstream from the project, which both have flows. The north channel has the majority of flow and measures 4.3 meters at bankfull channel width. The south channel measures 3 meters bankfull channel width and is less entrenched. During low flow months, the south channel does not maintain surface flow, but remains wet with a series of interspersed shallow pools.

The north channel maintains year-round flow and is heavily incised with the water surface as much as 0.9 meters below the top of bank. The vegetation consists of a dense understory of vine maple, salmonberry, red elderberry, sword fern and Himalayan blackberry. The overstory which provides a shading value of 80%, is a mixture of red alder and maturing conifers.

Analysis of Effects

The proposed action includes construction of stormwater drainpipe, requiring minimal construction. Potential effects of the proposed action on listed salmonids include the potential for short-term construction effects due to turbidity, vegetation removal (for pipeline) and increased stormwater discharges, and indirect long-term effects of degraded water quality from stormwater runoff associated with the interrelated/interdependent upland residential development.

Turbidity from Construction

The effects of suspended sediment and turbidity on fish, as reported in the literature, range from beneficial to detrimental. Elevated total suspended solids (TSS) conditions have been reported to enhance cover conditions, reduce piscivorous fish/bird predation rates, and improve survival. Elevated TSS conditions have also been reported to cause physiological stress, reduce growth, and adversely affect survival. Of key importance in considering the detrimental effects of TSS on fish are the frequency and the duration of the exposure, not just the TSS concentration.

Behavioral avoidance of turbid waters may be one of the most important effects of suspended sediments (DeVore *et al.* 1980, Birtwell *et al.* 1984, Scannell 1988). Salmonids have been observed to move laterally and downstream to avoid turbid plumes (Sigler *et al.* 1984, Lloyd 1987, Scannell 1988, Servizi and Martens 1991). Juvenile salmonids avoid streams that are chronically turbid, such as glacial streams or those disturbed by human activities, unless the fish need to traverse these streams along migration routes (Lloyd, 1987).

Turbidity caused by this project is expected to be minor, local, and short-term. To further protect listed species and water quality, the outfall pipe and rock dissipator should be constructed in the dry or during the in-water work window of July 15 through August 31.

Vegetation Removal

Removal of vegetation for site access and pipeline construction may result in increased input of sediments to the creek post-construction. Restoration of the construction area after construction activities are completed would minimize this potential.

Stormwater

Land conversions significantly influence hydrologic processes, increasing the magnitude, frequency and duration of peak discharges and reducing summer base flows (Booth 1991). These changes occur because of a loss of forest cover, and an increase in the impervious surface, and a replacement of the natural drainage system with an artificial network of storm pipes, drainage ditches, and roads (Lucchetti and Fuerstenberg 1993, Booth and Jackson 1997). Roads provide a direct drainage pathway for runoff into the stream system and storm sewer outfalls. Reductions in the natural drainage network and increases in artificial drainage systems shrink the lag time between a rainfall event and the point of peak discharge of stormwater into a stream (Booth and Jackson 1997). This reduction often equates to heightened stormwater peak discharges which cause streambed and streambank scour, mobilize and remove large wood, and extend durations of channel forming flows, as seen in Tickle Creek. This change to the natural hydrology of the stream can have adverse effects on all life stages of salmonids, however, rearing juveniles are particularly vulnerable to being swept downstream during high flows and flows of extended durations.

The increased impervious cover of urbanized watersheds also alters the pathway of water to streams. As functional vegetation is removed, evapotranspiration (evaporation of water from plant surfaces and transpiration of water from the soil by plants) can be decreased by 50% or more, resulting in increased runoff volume. Infiltration is reduced as soils are stripped of vegetation, compacted and/or paved, and impervious cover increases. This decrease in infiltration often results in a decrease of stream base flows, adversely affecting salmonids who use streams during the summer.

Water quality can be significantly affected by stormwater runoff. Nutrients, chemicals and metals are potentially widespread in the environment, and surface and groundwaters may be affected by activities that occur with increased development in a basin. In urban streams during storm events, nitrogen and phosphorus are available in some instances at levels that equal or exceed that of sewage effluent (Pitt and Bozeman 1980), with the annual export of nitrogen and orthophosphate from urban streams being 8 and 3 times greater, respectively, than in streams draining forested watersheds (Omernick 1977). This increase in nitrogen and phosphorus comes primarily from wastewater discharges and fertilizer use, and the result can be increased primary productivity elevated to nuisance levels, increasing oxygen demand and decreasing DO levels in the stream.

Pesticides are often detected in urban streams at concentrations that frequently exceed guidelines for the protection of aquatic biota (USGS 1999a, Hoffman *et al.* 2000). Sublethal effects, such as neurological behavioral effects stemming from standard rates of application of pesticides are a concern.

Natural metal concentrations in surface water vary regionally, however, a common feature of urban streams is elevated water column and sediment metal concentrations, including lead, zinc, chromium, copper, manganese, nickel, and cadmium, which increase with increased percentages of urban land use (Wilber and Hunter 1979). In addition to industrial discharges, other sources of metals are brake linings, tires, and metal alloys for engine parts. Although some metals are necessary trace nutrients, many metals are toxic to fish at very low concentrations (Spence *et al.* 1996).

The proposed project includes modification to a currently existing stormwater pond. Additional plants in the pond will help remove low concentrations of total suspended solids, metals, petroleum hydrocarbons, and nutrients from stormwater. The proposed water quality facility maintenance plan will be followed to insure the facility is functioning properly and efficiently. Removal of 70% of total suspended solids for all runoff generated up to and including the water quality storm of 0.83 inches of rainfall in 24 hours will be accommodated with the proposed design.

The effects of stormwater on salmonids have recently been evaluated in NOAA Fisheries stormwater guidance: ESA guidance for analyzing stormwater effects (2003b). To protect listed species, NOAA Fisheries recommends treating the volume of runoff predicted from a 6-month, 24-hour storm.

Cumulative Effects

Cumulative effects are defined in 50 C.F.R. 402.02 as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation."

NOAA Fisheries is not aware of any specific future non-Federal activities within the action area that would cause greater effects to listed species than presently occurs. Between 1990 and 2000, the population of Clackamas County increased by 21.4%.¹ Thus, NOAA Fisheries assumes that future private and state actions will continue within the action area, increasing as population density rises. As the human population in the state continues to grow, demand for actions similar to the subject project likely will continue to increase as well. Each subsequent action may have only a small incremental effect, but taken together they may have a significant effect that would further degrade the watershed's environmental baseline and undermine the improvements in habitat conditions necessary for listed species to survive and recover.

Conclusion

NOAA Fisheries has determined that, based on the available information, the proposed action is not likely to jeopardize the continued existence of listed species nor result in the destruction or

¹ U.S. Census Bureau, State and County Quickfacts, Coos County, Oregon. Available at <http://quickfacts.census.gov/qfd/states/41/41051.html>

adverse modification of critical habitat. NOAA Fisheries used the best available scientific and commercial data to analyze the effects of the proposed action on the biological requirements of the species relative to the environmental baseline, together with cumulative effects.

These conclusions are based on the following considerations: (1) Turbidity caused by this project is expected to be minor, local, and short-term; (2) the installation will be made during the recommended in-water work window of July 15 to August 31, when the fewest numbers of listed species are likely to be present or when the channel is dry; (3) stormwater runoff will be treated for water quality; and (4) with minimization measures incorporated into the project design, the proposed action is not likely to impair properly functioning habitat, or retard the long-term progress of impaired habitat toward proper functioning condition essential to the long-term survival and recovery at the population or ESU scale.

Reinitiation of Consultation

Consultation must be reinitiated if: (1) The amount or extent of taking specified in the incidental take statement is exceeded, or is expected to be exceeded; (2) new information reveals effects of the action may affect listed species in a way not previously considered; (3) the action is modified in a way that causes an effect on listed species that was not previously considered; or (4) a new species is listed or critical habitat is designated that may be affected by the action (50 C.F.R. 402.16).

Incidental Take Statement

The ESA at section 9 [16 USC 1538] prohibits take of endangered species. The prohibition of take is extended to threatened anadromous salmonids by section 4(d) rule [50 C.F.R. 223.203]. Take is defined by the statute as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” [16 USC 1532(19)] Harm is defined by regulation as “an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavior patterns, including, breeding, spawning, rearing, migrating, feeding or sheltering.” [50 C.F.R. 222.102] Harass is defined as “an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering.” [50 C.F.R. 17.3] Incidental take is defined as “takings that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant.” [50 C.F.R. 402.02] The ESA at section 7(o)(2) removes the prohibition from any incidental taking that is in compliance with the terms and conditions specified in a section 7(b)(4) incidental take statement [16 USC 1536].

An incidental take statement specifies the impact of any incidental taking of listed species. It also provides reasonable and prudent measures that are necessary to minimize the effects of take and sets forth non-discretionary terms and conditions with which the action agency must comply to implement the reasonable and prudent measures.

However, the incidental take statement included in this conference opinion for LCR coho salmon does not become effective until NOAA Fisheries adopts the conference opinion as a biological opinion, after the listing is final. Until the time that the species is listed, the prohibitions of the ESA do not apply to LCR coho.

Amount or Extent of the Take

NOAA Fisheries expects incidental take to occur as a result of proposed actions that will harm, injure or kill LCR Chinook and LCR steelhead. Incidental take of listed species is reasonably certain to occur because of potential adverse effects from decreased water quality due to turbidity from construction between the outfall pipe of the tributary and the confluence with Tickle Creek and discharge of pollutants in stormwater runoff. Although NOAA Fisheries expects the habitat-related effects of these actions to cause some level of incidental take within the action area, the best scientific and commercial data available are not sufficient to enable NOAA Fisheries to estimate a specific amount of incidental take because of those habitat-related effects. In instances such as these, NOAA Fisheries provides a measurable level of habitat disturbance or change that is causally related to the effects of the proposed action to provide an extent of take. Take for this action is limited to the installation of the discharge pipe and discharge of treated stormwater into a tributary of Tickle Creek.

Reasonable and Prudent Measures

The measures described below are non-discretionary. They must be implemented so that they become binding conditions in order for the exemption in section 7(a)(2) to apply. The COE has the continuing duty to regulate the activities covered in this incidental take statement. If the COE fails to adhere to the terms and conditions of the incidental take statement through enforceable terms added to the document authorizing this action, or fails to retain the oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(a)(2) may lapse.

NOAA Fisheries believes that the following reasonable and prudent measures are necessary and appropriate to avoid or minimize take of listed salmonid species resulting from the action covered by this Opinion.

The COE shall include measures that will:

1. Ensure completion of a comprehensive monitoring and reporting program to confirm this Opinion is meeting its objective of minimizing take from permitted activities.
2. Avoid or minimize incidental take from construction-related activities by applying permit conditions that require completion of construction, operation and maintenance actions with minimum harm to aquatic and riparian systems.

Terms and Conditions

To be exempt from the prohibitions of section 9 of the ESA, the COE must comply with the following terms and conditions, which implement the reasonable and prudent measures described above for each category of activity.

1. To implement reasonable and prudent measure #1 (monitoring), the COE shall ensure that:
 - a. Salvage notice. The following notice is included as a permit condition:

NOTICE. If a sick, injured or dead specimen of a threatened or endangered species is found, the finder must notify the Vancouver Field Office of NOAA Fisheries Law Enforcement at 360.418.4246. The finder must take care in handling of sick or injured specimens to ensure effective treatment, and in handling dead specimens to preserve biological material in the best possible condition for later analysis of cause of death. The finder also has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not disturbed unnecessarily.
 - b. Written planning requirements. Before beginning any work below bankfull elevation,² the permittee will provide a copy of the written plans for site restoration and pollution and erosion control to the Oregon State Habitat Office of NOAA Fisheries at the following address. Plan requirements are described below.

Director, Oregon State Habitat Office
Habitat Conservation Division
National Marine Fisheries Service
Attn: 2004/00157
525 NE Oregon Street
Portland, OR 97232
 - c. Implementation monitoring report required. The permittee submits an implementation monitoring report to the COE and to NOAA Fisheries, at the address below, within 120 days of completing all in-water work. The monitoring report will describe the permittee's success meeting his or her permit conditions.

² 'Bankfull elevation' means the bank height inundated by a 1.5 to 2-year average recurrence interval and may be estimated by morphological features such average bank height, scour lines and vegetation limits.

- i. If the in-water work will not be completed by January 31 following the year during which consultation was completed, the permittee shall submit a report to the COE and to NOAA Fisheries by January 31 saying why the in-water work was not complete.
 - ii. Submit a copy of the monitoring report or explanation of why work was not completed to the Oregon State Habitat Office of NOAA Fisheries, at the address above.
 - d. Implementation monitoring report contents. Each monitoring report will include the following information.
 - i. Project identification
 - (1) Permittee name, permit number, and project name.
 - (2) Project location, including any compensatory mitigation site(s), by 5th field HUC and by latitude and longitude as determined from the appropriate USGS 7-minute quadrangle map.
 - (3) COE contact person.
 - (4) Starting and ending dates for work completed.
 - ii. Habitat conditions. Photos of habitat conditions at the project and any compensation site or sites, before, during, and after project completion.³
 - (1) Include general views and close-ups showing details of the project and project area, including pre and post construction.
 - (2) Label each photo with date, time, project name, photographer's name, and a comment about the subject.
 - iii. Project data.
 - (1) Work cessation. Dates work ceased due to high flows, if any.
 - (2) Pollution control. A summary of pollution and erosion control inspections, including any erosion control failure, contaminant release, and correction effort.
 - (3) Site preparation.
 - (a) Total cleared area – riparian and upland.
 - (b) Total new impervious area.
 - (4) Site restoration. Photo or other documentation that site restoration performance standards were met.
 - e. Reinitiation contact. To reinitiate consultation, contact the Oregon State Habitat Office of NOAA Fisheries, at the address above.
- 2. To implement reasonable and prudent measure #2 (construction-related activities), the COE shall:
 - a. Site restoration. Ensure that the permittee successfully completes site restoration.

³ Relevant habitat conditions may include characteristics of channels, eroding and stable streambanks in the project area, riparian vegetation, water quality, flows at base, bankfull and over-bankfull stages, and other visually discernable environmental conditions at the project area, and upstream and downstream from the project.

- b. Site restoration. Prepare and carry out a written site restoration plan as necessary to ensure that all streambanks, soils and vegetation disturbed by the project are cleaned up and restored as follows. Submit a copy of the written site restoration plan to the COE and to the Oregon State Habitat Office of NOAA Fisheries, at the address above, before beginning work below bankfull elevation.
- i. General considerations.
- (1) Restoration goal. The goal of site restoration is renewal of habitat access, water quality, production of habitat elements (*e.g.*, large woody debris), channel conditions, flows, watershed conditions, and other ecosystem processes that form and maintain productive fish habitats.
 - (2) Streambank shaping. Restore damaged streambanks to a natural slope, pattern, and profile suitable for establishment of permanent woody vegetation, unless precluded by pre-project conditions (*e.g.*, a natural rock wall).
 - (3) Revegetation. Replant each area requiring revegetation before the first April 15 following construction. Use a diverse assemblage of species native to the project area or region, including grasses, forbs, shrubs, and trees. Noxious or invasive species may not be used.
 - (4) Pesticides. Take of ESA-listed species caused by any aspect of pesticide use is not included in the exemption to the ESA take prohibitions provided by this incidental take statement. Pesticide use must be evaluated in an individual consultation, although mechanical or other methods may be used to control weeds and unwanted vegetation.
 - (5) Fertilizer. Do not apply surface fertilizer within 50 feet of any stream channel.
 - (6) Fencing. Install fencing as necessary to prevent access to revegetated sites by livestock or unauthorized persons.
- ii. Plan contents. Include each of the following elements.
- (1) Responsible party. The name and address of the party(s) responsible for meeting each component of the site restoration requirements, including providing and managing any financial assurances and monitoring necessary to ensure restoration success.
 - (2) Baseline information. This information may be obtained from existing sources (*e.g.*, land use plans, watershed analyses, subbasin plans), where available.
 - (a) A functional assessment of adverse effects, *i.e.*, the location, extent and function of the riparian and aquatic resources that will be adversely affected by construction and operation of the project.
 - (b) The location and extent of resources surrounding the restoration site, including historic and existing conditions.

- (3) Goals and objectives. Restoration goals and objectives that describe the extent of site restoration necessary to offset adverse effects of the project, by aquatic resource type.
- (4) Performance standards. Use these standards to help design the site restoration plan and to assess whether the restoration goal is met. While no single criterion is sufficient to measure success, the intent is that these features should be present within reasonable limits of natural and management variation.
 - (a) Bare soil spaces are small and well dispersed.
 - (b) Soil movement, such as active rills or gullies and soil deposition around plants or in small basins, is absent or slight and local.
 - (c) If areas with past erosion are present, they are completely stabilized and healed.
 - (d) Plant litter is well distributed and effective in protecting the soil with few or no litter dams present.
 - (e) Native woody and herbaceous vegetation, and germination microsites, are present and well distributed across the site.
 - (f) Vegetation structure is resulting in rooting throughout the available soil profile.
 - (g) Plants have normal, vigorous growth form, and a high probability of remaining vigorous, healthy and dominant over undesired competing vegetation.
 - (h) High impact conditions confined to small areas necessary access or other special management situations.
 - (i) Streambanks have less than 5% exposed soils with margins anchored by deeply rooted vegetation or coarse-grained alluvial debris.
 - (j) Few upland plants are in valley bottom locations, and a continuous corridor of shrubs and trees provide shade for the entire streambank.
- (5) Five-year monitoring and maintenance plan.
 - (a) A written schedule to visit the restoration site annually for five years or longer as necessary to confirm that the performance standards are achieved. Despite the initial five-year planning period, site visits and monitoring will continue from year-to-year until the COE certifies that site restoration performance standards have been met.
 - (b) During each visit, inspect for and correct any factors that may prevent attainment of performance standards (*e.g.*, low plant survival, invasive species, wildlife damage, drought).
 - (c) Keep a written record to document the date of each visit, site conditions and any corrective actions taken.

- c. Minimum area. Confine construction impacts to the minimum area necessary to complete the project.
- d. Timing of in-water work. Complete all work below the bankfull elevation between July 15 and August 31 or in the dry.
- e. Cessation of work. Cease project operations under high flow conditions that may result in inundation of the project area, except for efforts to avoid or minimize resource damage.
- f. Fish passage. Provide passage for any adult or juvenile salmonid species present in the project area during construction, unless otherwise approved in writing by NOAA Fisheries, and after construction for the life of the project. Upstream passage is not required during construction if it did not previously exist.
- g. Pollution and Erosion Control Plan. Prepare and carry out a written pollution and erosion control plan to prevent pollution caused by surveying or construction operations. Submit a copy of the written plan to the COE and to the Oregon State Habitat Office of NOAA Fisheries, at the address above, before beginning work below bankfull elevation.
 - i. Plan Contents. The pollution and erosion control plan will contain the pertinent elements listed below, and meet requirements of all applicable laws and regulations.
 - (1) The name and address of the party(s) responsible for accomplishment of the pollution and erosion control plan.
 - (2) Practices to prevent erosion and sedimentation associated with access roads, stream crossings, drilling sites, construction sites, borrow pit operations, haul roads, equipment and material storage sites, fueling operations, staging areas, and roads being decommissioned.
 - (3) Practices to confine, remove and dispose of excess concrete, cement, grout, and other mortars or bonding agents, including measures for washout facilities.
 - (4) A description of any regulated or hazardous products or materials that will be used for the project, including procedures for inventory, storage, handling, and monitoring.
 - (5) A spill containment and control plan with notification procedures, specific cleanup and disposal instructions for different products, quick response containment and cleanup measures that will be available on the site, proposed methods for disposal of spilled materials, and employee training for spill containment.
 - (6) Practices to prevent construction debris from dropping into any stream or waterbody, and to remove any material that does drop with a minimum disturbance to the streambed and water quality.
 - ii. Inspection of erosion controls. During construction, monitor instream turbidity and inspect all erosion controls daily during the rainy season and

weekly during the dry season, or more often as necessary, to ensure the erosion controls are working adequately.⁴

- (1) If monitoring or inspection shows that the erosion controls are ineffective, mobilize work crews immediately to make repairs, install replacements, or install additional controls as necessary.
 - (2) Remove sediment from erosion controls once it has reached 1/3 of the exposed height of the control.
- h. Construction discharge water. Treat all discharge water created by construction (e.g., concrete washout, pumping for work area isolation, vehicle wash water, drilling fluids) as follows:
- i. Water quality. Design, build and maintain facilities to collect and treat all construction discharge water, including any contaminated water produced by drilling, using the best available technology applicable to site conditions. Provide treatment to remove debris, nutrients, sediment, petroleum hydrocarbons, metals, and other pollutants likely to be present.
 - ii. Discharge velocity. If construction discharge water is released using an outfall or diffuser port, velocities may not exceed 4 feet per second, and the maximum size of any aperture may not exceed 1 inch.
 - iii. Pollutants. Do not allow pollutants including green concrete, contaminated water, silt, welding slag, sandblasting abrasive, or grout cured less than 24 hours to contact any wetland or the two-year floodplain.
- i. Preconstruction activity. Complete the following actions before significant⁵ alteration of the project area.
- i. Marking. Flag the boundaries of clearing limits associated with site access and construction to prevent ground disturbance of critical riparian vegetation, wetlands and other sensitive sites beyond the flagged boundary.
 - ii. Emergency erosion controls. Ensure that the following materials for emergency erosion control are onsite.
 - (1) A supply of sediment control materials (e.g., silt fence, straw bales⁶).
 - (2) An oil-absorbing, floating boom whenever surface water is present.
 - iii. Temporary erosion controls. All temporary erosion controls will be in-place and appropriately installed downslope of project activity within the riparian area until site restoration is complete.

⁴ 'Working adequately' means that project activities do not increase ambient stream turbidity by more than 10% above background 100 feet below the discharge, when measured relative to a control point immediately upstream of the turbidity causing activity.

⁵ 'Significant' means an effect can be meaningfully measured, detected or evaluated.

⁶ When available, certified weed-free straw or hay bales will be used to prevent introduction of noxious weeds.

- j. Temporary access roads. Any temporary access roads will be constructed as follows:
 - i. Existing ways. Use existing roadways, travel paths, and drilling pads whenever possible, unless construction of a new way or drilling pad would result in less habitat take. When feasible, eliminate the need for an access road by walking a tracked drill or spider hoe to a survey site, or lower drilling equipment to a survey site using a crane.
 - ii. Steep slopes. Temporary roads or drilling pads built mid-slope or on slopes steeper than 30% are not authorized.
 - iii. Minimizing soil disturbance and compaction. Minimize soil disturbance and compaction whenever a new temporary road or drill pad is necessary within 150 feet⁷ of a stream, waterbody or wetland by clearing vegetation to ground level and placing clean gravel over geotextile fabric, unless otherwise approved in writing by NOAA Fisheries.
 - iv. Obliteration. When the project is complete, obliterate all temporary access roads that will not be in footprint of a new bridge or other permanent structure, stabilize the soil, and revegetate the site. Abandon and restore temporary roads in wet or flooded areas by the end of the in-water work period.
- k. Heavy Equipment. Restrict use of heavy equipment as follows:
 - i. Choice of equipment. When heavy equipment will be used, the equipment selected will have the least adverse effects on the environment (*e.g.*, minimally-sized, low ground pressure equipment).
 - ii. Vehicle and material staging. Store construction materials, and fuel, operate, maintain, and store vehicles as follows.
 - (1) To reduce the staging area and potential for contamination, ensure that only enough supplies and equipment to complete a specific job will be stored on-site.
 - (2) Complete vehicle staging, cleaning, maintenance, refueling, and fuel storage in a vehicle staging area placed 150 feet or more from any stream, waterbody, or wetland, unless otherwise approved in writing by NOAA Fisheries.
 - (3) Inspect all vehicles operated within 150 feet of any stream, waterbody or wetland daily for fluid leaks before leaving the vehicle staging area. Repair any leaks detected in the vehicle staging area before the vehicle resumes operation. Document inspections in a record that is available for review on request by COE or NOAA Fisheries.

⁷ Distances from a stream or waterbody are measured horizontally from, and perpendicular to, the bankfull elevation, the edge of the channel migration zone, or the edge of any associated wetland, whichever is greater. 'Channel migration zone' means the area defined by the lateral extent of likely movement along a stream reach as shown by evidence of active stream channel movement over the past 100 years (*e.g.*, alluvial fans or floodplains formed where the channel gradient decreases, the valley abruptly widens, or at the confluence of larger streams).

- (4) Before operations begin and as often as necessary during operation, steam clean all equipment that will be used below bankfull elevation until all visible external oil, grease, mud, and other visible contaminants are removed.
 - (5) Diaper all stationary power equipment (*e.g.*, generators, cranes, stationary drilling equipment) operated within 150 feet of any stream, waterbody or wetland to prevent leaks, unless suitable containment is provided to prevent potential spills from entering any stream or waterbody.
 - l. Site preparation. Conserve native materials for site restoration.
 - i. If possible, leave native materials where they are found.
 - ii. If materials are moved, damaged or destroyed, replace them with a functional equivalent during site restoration.
 - iii. Stockpile any large wood,⁸ native vegetation, weed-free topsoil, and native channel material displaced by construction for use during site restoration.
 - m. Runoffs/discharge into a freshwater system. When stormwater runoff will be discharged directly into fresh surface water or a wetland, or indirectly through a conveyance system, the following requirements apply.
 - (1) Maintain natural drainage patterns and, whenever possible, ensure that discharges from the project site occur at the natural location.
 - (2) Use a conveyance system comprised entirely of manufactured elements (*e.g.*, pipes, ditches, outfall protection) that extends to the ordinary high water line of the receiving water.
 - (3) Stabilize any erodible elements of this system as necessary to prevent erosion.
 - (4) Do not divert surface water from, or increase discharge to, an existing wetland if that will cause a significant adverse effect to wetland hydrology, soils or vegetation.
 - (5) The velocity of discharge water released from an outfall or diffuser port may not exceed 4 feet per second, and the maximum size of any aperture may not exceed one inch.

⁸ For purposes of this Opinion only, ‘large wood’ means a tree, log, or rootwad big enough to dissipate stream energy associated with high flows, capture bedload, stabilize streambanks, influence channel characteristics, and otherwise support aquatic habitat function, given the slope and bankfull channel width of the stream in which the wood occurs. See, Oregon Department of Forestry and Oregon Department of Fish and Wildlife, *A Guide to Placing Large Wood in Streams*, May 1995 (www.odf.state.or.us/FP/RefLibrary/LargeWoodPlacemntGuide5-95.doc).

MAGNUSON-STEVENSON FISHERY CONSERVATION AND MANAGEMENT ACT

Background

The MSA, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), established procedures designed to identify, conserve, and enhance essential fish habitat (EFH) for those species regulated under a Federal fisheries management plan. Pursuant to the MSA:

- Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH (§305(b)(2)).
- NOAA Fisheries must provide conservation recommendations for any Federal or state action that would adversely affect EFH (§305(b)(4)(A)).
- Federal agencies must provide a detailed response in writing to NOAA Fisheries within 30 days after receiving EFH conservation recommendations. The response must include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with NOAA Fisheries EFH conservation recommendations, the Federal agency must explain its reasons for not following the recommendations (§305(b)(4)(B)).

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting this definition of EFH: “Waters” include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; “substrate” includes sediment, hard bottom, structures underlying the waters, and associated biological communities; “necessary” means the habitat required to support a sustainable fishery and the managed species’ contribution to a healthy ecosystem; “spawning, breeding, feeding, or growth to maturity” covers a species’ full life cycle (50 C.F.R. 600.10), and “adverse effect” means any impact which reduces quality and/or quantity of EFH, and may include direct (*e.g.*, contamination or physical disruption), indirect (*e.g.*, loss of prey or reduction in species fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 C.F.R. 600.810).

EFH consultation with NOAA Fisheries is required regarding any Federal agency action that may adversely affect EFH, including actions that occur outside EFH, such as certain upstream and upslope activities.

The objectives of this EFH consultation are to determine whether the proposed action would adversely affect designated EFH and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH.

Identification of EFH

Pursuant to the MSA, the Pacific Fisheries Management Council (PFMC) has designated EFH for federally-managed fisheries within the waters of Washington, Oregon, and California. Designated EFH for groundfish and coastal pelagic species encompasses all waters from the mean high water line and upriver extent of saltwater intrusion in river mouths, along the coasts of Washington, Oregon and California, seaward to the boundary of the U.S. exclusive economic zone (370.4 km) (PFMC 1998a, 1998b). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other waterbodies currently or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC 1999), and longstanding, naturally-impassable barriers (*i.e.*, natural waterfalls in existence for several hundred years) (PFMC 1999). In estuarine and marine areas, designated salmon EFH extends from the nearshore and tidal submerged environments within state territorial waters out to the full extent of the exclusive economic zone (370.4 km) offshore of Washington, Oregon, and California north of Point Conception to the Canadian border (PFMC 1999).

Detailed descriptions and identifications of EFH are contained in the fishery management plans for groundfish (PFMC 1998a), coastal pelagic species (PFMC 1998b), and Pacific salmon (PFMC 1999). Casillas *et al.* (1998) provides additional detail on the groundfish EFH habitat complexes. Assessment of the potential adverse effects to these species' EFH from the proposed action is based, in part, on these descriptions and on information provided by the COE.

Proposed Actions

The proposed action and action area are detailed above in the Opinion. The action area includes habitats that have been designated as EFH for various life-history stages of Chinook and coho salmon.

Effects of Proposed Action

As described in detail in the Analysis of Effects section of this document, the proposed action will result in short-term adverse effects to a variety of habitat parameters. NOAA Fisheries believes that the proposed action will cause a minor, short-term degradation of anadromous salmonid habitat due to decreased water quality. Minimization measures will be incorporated into the construction methods to reduce adverse impacts to EFH.

EFH Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the MSA, NOAA Fisheries is required to provide EFH conservation recommendations to Federal agencies regarding actions which may adversely affect EFH. While NOAA Fisheries understands that the conservation measures described in the BA will be implemented by the COE it does not believe that these measures are sufficient to address the adverse impacts to EFH described above. However, the terms and conditions outlined in the

Opinion are generally applicable to designated EFH for the species designated in the Proposed Actions section of this EFH consultation, and address these adverse effects. Consequently, NOAA Fisheries incorporates Term and Condition #2 from the Biological Opinion here as EFH conservation recommendations.

Statutory Response Requirement

Pursuant to the MSA (§305(b)(4)(B)) and 50 C.F.R. 600.920(j), Federal agencies are required to provide a detailed written response to NOAA Fisheries' EFH conservation recommendations within 30 days of receipt of these recommendations. The response must include a description of measures proposed to avoid, mitigate, or offset the adverse impacts of the activity on EFH. In the case of a response that is inconsistent with the EFH conservation recommendations, the response must explain the reasons for not following the recommendations, including the scientific justification for any disagreements over the anticipated effects of the proposed action and the measures needed to avoid, minimize, mitigate, or offset such effects.

Supplemental Consultation

The COE must reinitiate EFH consultation with NOAA Fisheries if the proposed action is substantially revised in a manner that may adversely affect EFH, or if new information becomes available that affects the basis for NOAA Fisheries' EFH conservation recommendations (50 C.F.R. 600.920(k)).

DATA QUALITY ACT DOCUMENTATION AND PRE-DISSEMINATION REVIEW

Section 515 of the Treasury and General Government Appropriations Act of 2001 (Public Law 106-554) ("Data Quality Act") specifies three components contributing to the quality of a document. They are utility, integrity, and objectivity. This section of the Opinion addresses these Data Quality Act (DQA) components, documents compliance with the DQA, and certifies that this Opinion has undergone pre-dissemination review.

Utility: This ESA section 7 consultation on the City of Sandy Stormwater Drainpipe Project, in Clackamas County, Oregon, concluded that the action will not jeopardize the continued existence of LCR steelhead, LCR Chinook salmon, or LCR coho salmon. Therefore, the COE may authorize that action. Pursuant to the MSA, NOAA Fisheries provided the COE with conservation recommendations to conserve EFH.

The intended users of these consultations are the COE and the applicant. Citizens of the City of Sandy and the American public will benefit from the consultation.

Individual copies were provided to the above listed entities. This consultation will be posted on the NOAA Fisheries NW Region web site (<http://www.nwr.noaa.gov>). The format and naming adheres to conventional standards for style.

Integrity: This consultation was completed on a computer system managed by NOAA Fisheries in accordance with relevant information technology security policies and standards set out in Appendix III, “Security of Automated Information Resources,” Office of Management and Budget Circular A-130; the Computer Security Act; and the Government Information Security Reform Act.

Objectivity:

Information Product Category: Natural Resource Plan.

Standards: This consultation and supporting documents are clear, concise, complete, and unbiased; and were developed using commonly accepted scientific research methods. They adhere to published standards including the NOAA Fisheries ESA Consultation Handbook, ESA Regulations, 50 C.F.R. 402.01 et seq., and the MSA implementing regulations regarding EFH, 50 C.F.R. 600.920(j).

Best Available Information: This consultation and supporting documents use the best available information, as referenced in the literature cited section. The analyses in this biological opinion/EFH consultation contain more background on information sources and quality.

Referencing: All supporting materials, information, data and analyses are properly referenced, consistent with standard scientific referencing style.

Review Process: This consultation was drafted by NOAA Fisheries staff with training in ESA and MSA implementation, and reviewed in accordance with Northwest Region ESA quality control and assurance processes.

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